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VYDRIN, V.N. ; DMITRIYEV, V.P.

Geological characteristics of the Zmeinogorsk ore-bearing area
(Rudnyy-Altai). Geol.rud. mestorozh. no.6:46-60 N-D '61.
(MIRA 14:3)

1. Moskovskiy gosudarstvennyy universitet, Zapadnosibirskoye
geologicheskoye upravleniye.
(Altai Mountains—Geology, Economic)

VYDRIN, V.N., kand. tekhn. nauk.

Energy theory of plastic deformation in connection with the
equation of plasticity. Sbor. st. CHPI no.11:111-126 '57.
(Deformations (Mechanics)) (MIRA 11:4)

VYDRIN, V.N., kand. tekhn. nauk.

Connection between displacements and stresses during plastic
deformations. Sbor. st. CHPI no.11:127-131 '57.   (MIRA 11:4)
(Deformations (Mechanics))

VYDRIN, V.N.

PHASE I BOOK EXPLOITATION   SOV/3226

Mezhvuzovskaya nauchno-tekhnicheskaya konferentsiya na temu: "Sovremennyye dostizheniya prokatnogo proizvodstva."

Trudy.. (Transactions of the Intercollegiate Scientific and Technical Conference on Recent Achievements in the Rolling Industry) Leningrad, 1958. 251 p. 1,000 copies printed.

Sponsoring Agencies: Leningradskiy politekhnicheskiy institut im. M.I. Kalinina, Nauchno-tekhnicheskoye obshchestvo mashinostroit'el-noy, Leningradskoye otdeleniye, and Nauchno-tekhnicheskoye obshchestvo metallurgov, Leningradskoye otdeleniye.

Resp. Ed.: V.S. Smirnov, Doctor of Technical Sciences, Professor; M.M. Pavlov.

PURPOSE: These proceedings of the conference are intended for specialists in the rolling industry.

COVERAGE: The articles of this collection cover various theoretical and practical problems of rolling, such as: pressure, spread, and deformation, forces required, efficiency of rolls, determination for rolling, experiences of various plants, optimum conditions for rolling, aluminum-clad steel, pass design, modernization of equipment, and rolling of nonferrous metals. No personalities are mentioned. References appear after each article.

VYDRIN, V.N.

Geological structure of the Trepca lead-zinc deposit in Yugo-
slavia [with summary in English]. Sov. geol. 1 no.6:157-174
Je '58.   (MIRA 11:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
     (Trepca region, Yugoslavia--Geology, Structural)
               (Yugoslavia--Ore deposits)

SOV/137-59-1-1552

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 207 (USSR)

AUTHOR: Vydrin, V. N.

TITLE: On the Work of Friction During Rolling (O rabote treniya pri prokatke)

PERIODICAL: Sb. statey. Chelyab. politekhn. in-t, 1958, Nr 8, pp 58-65

ABSTRACT: The author criticizes the formulae developed by Vereshchagin, Petrov,
           Bayukov, and Chekmarev for the purpose of calculating the work
           against friction (Fr) forces (F). Starting from the assumption that
           the specific pressures are distributed uniformly along the arc of con-
           tact, the author derives a formula for the relative slipping of metal
           over the rolls and for the work done against the Fr F's in the lag and
           the lead zones, as well as in the entire contact area. The magnitude
           of the Fr is determined. A number of curves are given representing
           the work done against the Fr F's as a function of the critical angle γ
           at various coefficients of Fr and under particular conditions of rolling;
           under conditions when the coefficient of Fr is > 0.1, the work done
           against Fr accounts for the greater portion of energy losses. A
           computation of the effect of spread on the work done against Fr is
Card 1/2   given. The total work consumed during rolling is defined as the sum

SOV/137-59-1-1552

On the Work of Friction During Rolling

of the work done against Fr and the work of deformation.

P. G.

Card 2/2

25(2)   SOV/148-59-1-16/19

AUTHOR: Vydrin, V.N., Candidate of Technical Sciences

TITLE: Computation of the High-Speed Rate and Capacity of Reversing
             Mills (K raschëtu skorostnykh rezhimov i proizvoditel'nosti
             reversivnykh stanov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Chernaya metallurgiya,
             1959, Nr 1, pp 135-143 (USSR)

ABSTRACT: A new method of computing the working rate of reversing mills
             is presented which is based on the graphical interpretation of
             the rolling process in such mills, and on the main principle
             that the areas of portions of the graph (Figure 1) corre-
             sponding to the machining time are directly proportional to
             the length of the rolled strip. The correctness of this
             principle which was first developed by A.I. Tselikov [Ref 2],
             is confirmed and basic problems of rolling on reversing mills
             are analyzed with the use of the proposed method. Formulas
             are given to calculate the machining time of the pass, duration
             of the cycle of roll revolution and the optimum ratio for the
             rates of the grasp and release of the strip. Computation of
Card 1/2   the machine capacity is facilitated by the following formula,

Computation of the High-Speed Rate and Capacity of Reversing Mills

determining the duration of the cycle:

$$t_{u} = \frac{1}{n_n} \left(\frac{60}{\pi} \cdot \frac{L}{D} + \frac{n_n^2 + n_3^2}{2a} + \frac{n_n^2 + n_B^2}{2b} \right)$$

where t_u is the duration of cycle; n_n is the constant rate of rolling; n_3 is the rate at the gripping; n_B is the rate at the release; a is the acceleration of the rolls; and b is the retardation of the rolls; L is the strip length and D is the diameter of rolls.
There are 6 diagrams and 4 Soviet references.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Poly-technical Institute)

SUBMITTED: December 25, 1958

Card 2/2

SOV/137-59-3-6741

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 257 USSR)

AUTHOR: Vydrin. V. N.

TITLE.   Work and Power Considerations for Rolling Operations (Rabota i
             moshchnost' prokatki)

PERIODICAL: Sb. statey Chelyab. politekhn. in-t, 1958, Nr 8, pp 66-75

ABSTRACT: The well-known Fink formula for the determination of the power (P)
           of rolling (R) cannot be considered sufficiently accurate because it
           fails to take into consideration the fact that the P of R is a function
           of the magnitude of the critical angle γ, i.e., of the forward slip,
           and because it completely disregards the effect of spread in the
           strip. Data of an investigation were employed in deriving formulas
           for the displaced volume of metal, the quantity of work, and the P of
           R, due allowances being made for the phenomena of spread and for-
           ward slip of the strip; an analysis of the effect of the individual fac-
           tors on the P of R is also given. The formulas derived have the
           following form: The volume displaced per unit of time $V_c = \omega_\gamma \cos \gamma \, vt$
           $\cdot \log_e h_0/h_1$, the work of R, $A = p_c \omega_\gamma \cos \gamma \, vt \log_e h_0/h_1$,   the P of R,
Card 1/3 $N = p_c \omega_\gamma \cos \gamma \, v \log_e h_0/h_1$, where p_c is the total resistance to

Work and Power Considerations for Rolling Operations

deformation (mean value); ω_γ the area of the strip at the critical cross section; h_o the initial height of the strip; h_1 the final height of the strip; v the peripheral velocity of the rolls; t the time required for R of the strip; and γ the critical angle. These formulas may be employed in the determination of the work and the P of R of any structural shapes. They also make it possible to establish by which factors and to what extent the P of R is affected. It follows from the last formula that an increase in the forward slip results in all instances in an increased P of R. This may be explained by the fact that as the angle γ is increased, the area ω_γ [Transl. Note: Russian original reads ϵ_γ] becomes greater and, as a result, the quantity of metal being drawn into the rolls (where it is reduced) per unit time is also increased. Essentially, the effect of spread manifests itself in the fact that as its intensity is increased the area of the critical cross section ω_γ increases together with the amount of metal deformed in one second. As the diameter of the rolls is made larger, the length and, consequently, the volume of the contact area is increased. Under conditions of constant relative reduction h_o/h_1, this results in an increased volume of metal displaced as well as in an increased P of R. The P of R increases also with increasing thickness h_1 of the strip. The physical meaning of this regularity in behavior lies in the fact that, while the volume of the contact area increases as the h_1 is increased, the $\log_e h_o/h_1$ grows

Card 2/3

SOV/137-59-3-6741

Work and Power Considerations for Rolling Operations

smaller but at a considerably slower rate. As a result, both the displaced volume and the P of R become greater.

G. L.

Card 3/3

AUTHORS: Vydrin, V.N., Amosov, P.N., Kossovskiy, L.D.   32-1-35/55

TITLE: A Method of Determining the Wear of Rolling Shafts (Metod
             opredeleniya iznosa prokatnykh valkov).

ABSTRACT: In this paper a new method of determining the wear of grooves of
             rolling shafts is recommended. For this purpose two works templates
             were rivetted together in such a manner that a distance of 6-8 mm
             remained between them. On the surface of one of the templates
             lines were drawn symmetrically and parallel to the axis of the
             template, after which they both received a coating of paint. In
             the inner diameter of the grooved part of the roll a layer of
             "plastiline" was applied in such a manner that it filled the
             grooved profile at one part of the shaft, so that it was located
             3-4 mm higher. At this point the aforementioned double template
             was pressed in in the direction of the axis of the shaft. The
             "plastiline" entered the space between the two templates. The
             double template was then removed from the shaft and was filled
             with "plastiline". The extend to which this filling protruded be-
Card 1/2   yond the edges of the templates determined the degree of wear of

A Method of Determining the Wear of Rolling Shafts   32-1-35/55

the grooved internal diameter of the roll, which could then be
measured according to the photos taken of this protruding part or
immediately by means of the ocular microscope "$M \delta C$ -1". There
is 1 figure.

ASSOCIATION: Chelyabinsk Polytechnic Institute and Chelyabinsk Metallurgic Works
(Chelyabinskiy politekhnicheskiy institut i Chelyabinskiy
metallurgicheskiy zavod).

AVAILABLE: Library of Congress

Card 2/2   1. Shafts-Test methods   2. Shafts-Test results

VYDRIN, V.N., kand.tekhn.nauk

Friction work during the rolling. Sbor.st.CHPI no.8:58-65 '58.
(MIRA 11:9)

(Rolling (Metalwork)) (Friction)

SOV/137-58-12-24411

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 66 (USSR)

AUTHOR: Vydrin, V. N.

TITLE: Rolling in Rolls of Unequal Diameter (Prokatka v valkakh neravnogo diametra)

PERIODICAL: Tr. Mezhvuz. nauchno-tekhn. konferentsii na temu: "Sovrem. dostizh. prokatn. prc.z-va". Leningrad, 1958, pp 71-77

ABSTRACT: Proceeding from the equation for the energy balance of asymmetrical rolling, an equation is derived for the critical angles of the larger and smaller rolls: $\gamma_\delta = 1/2 \ [A - (1-k)h_1/AR_\delta]$: $\gamma_M < 1/2k$ $[A + (1-k)h_1/AR_\delta]$, where $k = R_M/R_\delta$ and the value of $\bar{A} = \alpha_\delta$ $[1 - \alpha_\delta (1+k)/2f2k]$. The inequality of the roll diameters is responsible for the special features of the conditions of rolling. For example, it is always the roll of larger diameter that starts to slip first. The conditions for skidding will be met when $A \leq \sqrt{(1-k)h_1/R_\delta}$, but rolling will continue, as there is an unutilized reserve of forces of friction in the zone of forward slip of the roll of smaller diameter. Rolls of smaller diameter start to be friction driven at $\gamma_M \geq \alpha_M/2$.

Card 1/2

Rolling in Rolls of Unequal Diameter (cont.)

SOV/137-58-12-24411

The operating conditions of pinion rolls depend upon the roll to which the moment of torque of the motor is transmitted directly and upon the conditions of rolling, while the operating conditions of the connecting details depend upon the conditions of rolling.

Ya. G.

Card 2/2

VYDRIN, V.N., kand.tekhn.nauk

Effect of strip tightening on the forward flow in rolling. Sbor.st.
CHPI no.8:133-143 '58.   (MIRA 11:9)
          (Rolling (Metalwork))

18(5)
AUTHOR: Vydrin, V. N.

TITLE: Deformation of Hollow Cylindrical Bodies (Deformatsiya polykh tsilindricheskikh tel)

ABSTRACT: With the help of the theory of plasticity based upon energy conceptions, the principles of which have been exposed by the author in another paper (Ref 1), and of which a short summary is given in this article, a solution of the problems connected with the deformation of hollow cylindrical bodies is presented. The fundamental formula (20) for the deformation of such bodies is obtained in its final shape. This formula covers all stressed states possible in deformation. From this equation (20) formulas were obtained for calculating the most common kinds of deformation. They are either new, or they are an improvement of existing solutions. The results obtained are not in contradiction with existing solutions but do in special cases base upon them. As is shown in this paper

Card 1/2

Deformation of Hollow Cylindrical Bodies   SOV/164-59-1-22/50

> the magnitude of deformation forces depends upon the state
> of plastic flow of the metal. There are 2 figures and 2
> Soviet references.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Poly-
               technical Institute)

SUBMITTED: May 23, 1958

Card 2/2

SCV/163-59-1-23/50

18(5)
AUTHOR: Vydrin, V. N.

TITLE: Distortions and Forces in the Deformation of Hollow Cylindri-
                cal Bodies (Formoizmoneniye i usiliya pri deformatsii polykh
                tsilindricheskikh tel)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959,
                Nr 1, pp 119 - 125 (USSR)

ABSTRACT: In a previous paper by the same author (Ref 1) it was shown
                that in drawing tubes the magnitude of forces required for
                plastic deformation is usually dependent upon the behaviour
                of the metal in the state of plastic flow. The problem
                approached in this paper is that of determining the distorted
                shape of the body for given attack forces and dimensions.
                Proceeding from the theory of plastic deformation (Refs 1,2)
                the fundamental questions of the distortion and deformation
                of hollow cylindrical bodies are investigated. Formula (4)
                is derived for the case where the tube is subjected to a
Card 1/3   radial pressure p_b from outside, to a pressure p_a from inside

Distortions and Forces in the Deformation of Hollow
Cylindrical Bodies

and an axial thrust p_z. According to this formula the state of plastic flow of the metal may be described. A number of special cases are investigated and the corresponding formulas are therefore derived from formula (4). 1) The tube is closed on either end, the external pressure being equal to the thrust $(p_b = p_z)$. 2) The tube is only subjected to an external pressure p_b. 3) It is only subjected to internal pressure. 4) The tube is deformed by axial thrust P. 5) Stretching and upsetting of the tubes in an axial direction: $p_b = p_a = 0$. 6) Drawing of the tubes without a drawing mandrel.

This includes a solution of the problem concerning the change of tube wall thickness in drawing without drawing mandrel. The relationships obtained permit to determine the forces required for the plastic deformation of hollow cylindrical bodies for arbitrary load states and the modifications of the dimensions. The results obtained are verified by the existing experimental information. There are 4 figures and 5 Soviet references.

Card 2/3

Distortions and Forces in the Deformation of Hollow   SOV/163-59-1-23/30
Cylindrical Bodies

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Poly-
                technical Institute)

SUBMITTED: May 23, 1958

Card 3/3

VYDRIN, V.N., kand.tekhn.nauk

Calculating high-speed rolling and the output of reversing mills.
Izv.vys.ucheb.zav.; chern.met. 2 no.1:135-143 Ja '59.

(MIRA 12:4)

1. Chelyabinskiy politekhnicheskiy institut.
(Rolling (Metalwork))   (Mechanics, Analytic)

YAKOVLEV, G.F.; VYIRIN, V.N.

Structural characteristics of the distribution of complex
ore deposits in Zmeinogorsk District (Rudnyy Altai). Izv.
vys.ucheb.zav.; geol.i razv. 2 no.10:48-63 O '59.
(MIRA 13:6)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Zmeinogorsk District—Ore deposits)

VIERIN - V. N.

25(1)

FILE I BOOK EXPLOITATION   SOV/2565

Chelyabinsk. Politekhnicheskiy institut

Voprosy teorii i praktiki obrabotki metallov davleniyem (Problems in the Theory and Practice of Metal Forming) Moscow, Mashgiz, 1959. 105 p. (Series: Its [Sbornik] vyp. 18) Errata slip inserted. 5,000 copies printed.

Reviewers: V.A. Shumaygarov, Candidate of Technical Sciences, V.G. Belakin, Engineer; M.I. Bakin, V.I. Korshunov, I.I. Kachinskiy, L.A. Kritsahbayn, B.N. Malyarevskiy, M.I. Smolk, and D.I. Pishmaj Ed.: V.I. Vydrin, Candidate of Technical Sciences; Exec. Ed. (Ural-Siberian Division, Mashgiz): A.Y. Sulevin, Engineer; Tech. Ed.: B.A. Dugina.

PURPOSE: This collection of articles is intended for engineers, technicians, and scientific workers in metal forming.

COVERAGE: This collection of articles, written by staff members of the Chelyabinsk city politekhnicheskiy institut (Chelyabinsk Polytechnical Institute), deals with problems on the theory, processes, and equipment of metal forming.

Problems in change of shape and state of stress of parallelepipeds and cylindrical bodies subjected to flattening in plane parallel forging tools are discussed. The essentials of the theory of the interaction between strip and roll, and the question of slip along contact surfaces during rolling are explained. An analytic method for the kinematic design of cross-distribution mechanisms for stand beams is presented. Precision stamping of thin-walled parts of lubricant also is described. An investigation of the function of expansion in in-tandem rolling mills is discussed. An article on the testing of electric heating furnaces is also included. No personalities are mentioned. References follow several of the articles.

23(1)

PHASE I BOOK EXPLOITATION   SOV/2305

Chelyabinsk. Politekhnicheskiy Institut

Voprosy teorii i praktiki obrabotki metallov davleniyem (Problems in the Theory and Practice of Metal Forming) Moscow, Mashgiz, 1959. 105 p. (Series: Its (Sbornik) 777, 14) Errata slip inserted. 5,000 copies printed.

Reviewers: V.S. Smirnyakov, Candidate of Technical Sciences; I.G. Kiknis, Engineer; M.A. Bedin, V.L. Korshunov, I.I. Kazinskiy, L.A. Krivalev; E.I. Mikurovskiy, M.A. Smolik, and A.I. Tikhonov, Ed.; V.I. Vydrin, Candidate of Technical Sciences; Exec. Ed. (Ural-Siberian Division, Mashgiz); A.V. Baletina, Engineer; Tech. Ed.: M.A. Dugina.

PURPOSE: The collection of articles is intended for engineers, technicians, and scientific workers in metal forming.

COVERAGE: This collection of articles, written by staff members of the Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Polytechnical Institute), deals with problems on the theory, processes, and equipment of metal forming.

Problems in change of shape and rate of stress of partialgripode and cylindrical bodies subjected to flattening in plane parallel forging heads are discussed. The essentials of the theory of the interaction between strip and roll, and the question of slip along contact surfaces during rolling are explained. An analytic method for the kinematic design of cross-distribution mechanisms for steel hammers is presented. Precision stamping of thin-walled parts of intricate shape is described. An investigation of the function of repeaters in in-tandem rolling mills is discussed. An article on the working of electric heating furnaces is also included. No personalities are mentioned. References follow several of the articles.

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Smirnyakov, V.S. (Engineer). On the Problem of Elongation in Sheet Distribution
Mechanics of Sheet Hammers
   Provides the basic data derived in this investigation
   permit the design of steam distribution mechanisms based on the
   dimensions and free travel.

Vydrin, V.N., N.N. Agenov (Engineer), and O.I. Tishchenko (Engineer). In-
vestigation of the Function of Repeaters on a Light Merchant Mill
   The author claims an analogy between the action of the bar in a
   repeater and belt drive. He uses Euler's formula for belting to
   derive the formula for the motion of a bar in a repeater. He uses
   this formula as a criterion for analyzing the function of a repeater,
   Experimental investigation involving the equipment used are described,
   and data are presented.

Kunin, I.M. (Candidate of Technical Sciences) and A.P. Butov (Engineer).
Production Testing of Electric Heating Furnaces
   In this article diagrams are presented showing temperature changes
   and power consumption of starting and during operation, losses during
   idling, and the productivity of electric heating furnaces.

AVAILABLE: Library of Congress

60/21

VYDRIN, V.N., kand.tekhn.nauk; BOYKO, M.Ye., inzh.; AMOSOV, P.N., inzh.;
BOYKO, M.Ye., inzh.; AMOSOV, P.N., inzh.; MOSHKIN, S.I., inzh.

Investigating the fluctaution of pull on continuous small
section mills. Izv.vys.ucheb.zav.; chern.met. 2   no.6:37-42
Je '59.   (MIRA 13:1)

1. Chelyabinskiy politekhnicheskiy institut i Chelyabinskiy
metallurgicheskiy zavod. Rekomendovano kafedroy obrabotki
metallov davleniyem Chelyabinskogo politekhnicheskogo instituta.
(Rolling (Metalwork))

VYDRIN, V.N., kand. tekhn. nauk

Physical substance of forward flow. Sbor. st. CHPI no.14:63-69
'59.   (MIRA 12:8)
            (Rolling (Metalwork))

VYDRIN, V.N., kand. tekhn. nauk

Effect of spread on the strip slipping during the rolling
process. Sbor. st. CHPI no.14:70-75 '59.   (MIRA 12:9)
(Rolling (Metalwork))

VYDRIN, V.N., kand. takhn. nauk; AMOSOV, P.N., inzh.; TISHCHENKO, O.I., inzh.

Investigating the performance of guide systems on small
section mills. Sbor. et. CHPI no.14:91-100 '59.

(MIRA 12:9)

(Rolling mills)

TARNOVSKIY, Iosif Yakovlevich; POZDEYEV, Aleksandr Aleksandrovich;
GANAGO, Oleg Aleksandrovich; UNKSOV, Ye.P., prof., doktor tekhn.
nauk, retsenzent; VYDRIN, V.N., dotsent, kand.tekhn.nauk, red.;
YERMAKOV, N.P., tekhn.red.

[Deformations and forces in press forging of metals] Deformatsii
i usiliia pri obrabotke metallov davleniem. Moskva, Gos.nauchno-
tekhn.izd-vo mashinostroit.lit-ry. 1959. 303 p.   (MIRA 12:12)
     (Forging machinery)   (Deformations (Mechanics))

VYDRIN, V.N.

Sequence in the formation of intrusive rocks and ore formation site
in the Zmeinogorsk (Korbalikhinskoye) ore deposit (Rudynyy Altai).
Biul. MOIP. Otd. geol. 34 no.6:139-140 N-D '59.   (MIRA 14:3)
            (Altai Mountains—Ore deposits)
                (Rocks, Igneous)

PHASE I BOOK EXPLOITATION   SOV/4319

Vydrin, Vladimir Nikolayevich

Dinamika prokatnykh stanov (Dynamics of Rolling Mills) Sverdlovsk, Metallurgizdat,
   1960. 255 p. 3,350 copies printed.

Ed.: V.B. Lyashkov; Ed. of Publishing House: A.P. Skorobogacheva; Tech. Ed.:
   Ye.D. Turkina.

PURPOSE: The book is intended for process engineers and designers engaged in
   rolling. It may also be useful to scientific workers and students studying
   rolling processes.

COVERAGE: The author discusses problems of the dynamics and kinematics of various
   types of rolling mills (including continuous mills) on the basis of an investiga-
   tion of the processes taking place in the contact area, and a study of the special
   features of the mechanical equipment and main drives. The solution of the problems
   of dynamics and kinematics is based on the principle of the conservation of energy
   in the contact area. Formulas are derived for the calculation of torque, the
   power consumed in rolling, and distribution of the load between the rolls and

Card 1/7

AUTHOR: Vydrin, V. N.

TITLE: Theoretical principles of continuous rolling

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1961, 2, abstract 7D10
             ("Tr. Konferentsii Tekhn. progress v tekhnol. prokatn. proiz-va".
             Sverdlovsk, Metallurgizdat, 1960, 27-28)

TEXT: The continuous rolling mill is considered by the author as a single
whole governed by the law of conservation of energy of the system. The author
demonstrates mathematically that the total power of the tensile stresses on all
portions of the strip is equal to the total power of the reelers of the continuous
mill. The result of the investigation yields 1) the velocity schedule of a
5-stand continuous mill ensuring equal relative stretches; 2) the effect of
velocity variations of the rolls of one stand and of group variations upon the
tension schedule and the motor load of a cold continuous rolling mill; 3) the
tensions in various sections of the strip at different instants of the nonsteady-
state period of operation of the 5-stand continuous mill; 4) variations in the

Card 1/2

Theoretical principles of continuous rolling

S/137/61/000/007/011/072
A060/A101

load of the drive of the 5-stand continuous mill during the nonsteady-state period of its operation.

A. Bulanov

[Abstracter's note: Complete translation]

Card 2/2

S/137/61/000/007/021/072
A060/A101

AUTHORS: Vydrin, V. N.;   Boyko, M. Ye.;   Amosov, E. N.;   Moshkin, S. E.

TITLE: Investigation of the tension schedule on a continuous light-section
             mill

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1960, abstract 7D41.
             ("Tr. Konferentsii: Tekhn. progress v tekhnol. prokatn. proiz-va".
             Sverdlovsk, Metallurgizdat, 1960, 363-364)

TEXT: The method of tension measurement by means of tension pulley is
inapplicable in the section rolling practice, and the authors propose their own
method according to which the pressure between the pad of the roll bearing and
the bedplate of the rolling stand is measured by a special dynamometer. It is
established that the relationship between the tension and the velocity mismatch
is linear. See also RZhMet, 1960, no. 4, 7653.

                                                        A. Bulanov

[Abstracter's note: Complete translation]

Card 1/1

18.5000

77686
SOV/148-60-1-9/34

AUTHOR: Vydrin, V. N.

TITLE: Application of methods of Calculus of Variations to Working Metals by Forces of Pressure

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, Nr 1, pp 53-59 (USSR)

ABSTRACT: This is an example of analytical study of upsetting the strip in presence of external parts (not deformed)--rigid ends. In author's previous work various problems of uniform (over volume of the body) deformation were solved by application of the principle of a minimum of full energy of deformation and the law of preservation of energy. During uniform deformation, the mechanism of changing the shape is fully determined by one variable parameter (ν), and the condition of a minimum of full energy of deformation is reduced to the usual condition of a minimum of a function of one

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variable $(\mathcal{V})$. In a more general case, during
nonuniform deformation, the conditions of the
minimum are found by the methods of theory of
variations. The presently studied problem gives
a quantitative solution of the effect of rigid ends
on the process of deformation. In order to establish
the effect of rigid ends as such, it is necessary
to exclude the supplementary effect of external
friction, that is, to consider upsetting of the
strip between well-polished dies with lubrication,
when the forces of contact friction can be neg-
lected (in comparison with the work of shape-
changing). The author refers to his previous work
(V. N. Vydrin, Concerning the Energy Theory of Plastic
Deformation in Connection With Equation of Plasticity,
Collection, Strength Calcuations of Structural Elements,
Mashgiz, 1957; V. N. Vydrin, Regarding the Connection
Between Shifting and Stresses During Plastic Deformation,
Collection, Strength Calculations of Structural Elements
Mashgiz, 1957; V. N. Vydrin, Deformation of Hollow

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Cylindrical Bodies, Scientific Reports of Higher School,
Metallurgy, 1959, Nr 1; V. N. Vydrin, Shape-Changing
and Forces During Deformation of Hollow Cylindrical
Bodies, Scientific Reports of Higher School, Metallurgy,
1959, Nr 1). The author begins his present work with an
equation for the work of shape-changing during plastic
deformation:

$$A_\psi = \int_V \mu \sqrt{2(\varepsilon_1^2 - \varepsilon_1\varepsilon_3 + \varepsilon_3^2)}\, dV = \int_V \mu \sqrt{\varepsilon_1^2 + \varepsilon_2^2 + \varepsilon_3^2}\, dV, \qquad (1)$$

where $\mathcal{E}_1$, $\mathcal{E}_2$, $\mathcal{E}_3$ = deformations of elongation in the
direction of main axes. The author states that in
application to any axes this equation can be written as:

$$A_\psi = \int_V \mu \sqrt{\varepsilon_x^2 + \varepsilon_y^2 + \varepsilon_z^2 + \frac{1}{2}(\gamma_{xy}^2 + \gamma_{yz}^2 + \gamma_{zx}^2)}\, dV \qquad (2)$$

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or as: $A_\phi = \dfrac{1}{\sqrt{2}} \int_V \gamma \, \Gamma \, dV,$ (3)

where Γ = intensity of deformation of shear. If a
network of mutually perpendicular lines is drawn on the
surface of the strip before upsetting, then, as a result
of nonuniform deformation, this network will be distorted.
The initially straight lines will bend and will appear
as $v = v(x,y)$ and $u = u(x,y)$ (see Fig. 1). These lines,
characterizing the absolute shifting of points of the
body in the direction of coordinate axes, the author calls
the "lines of flow" at the infinitely small upsetting

$w_z = \dfrac{dh}{h}$.   Then it will be easy to determine the

deformations in every point of the body and of the whole
body.

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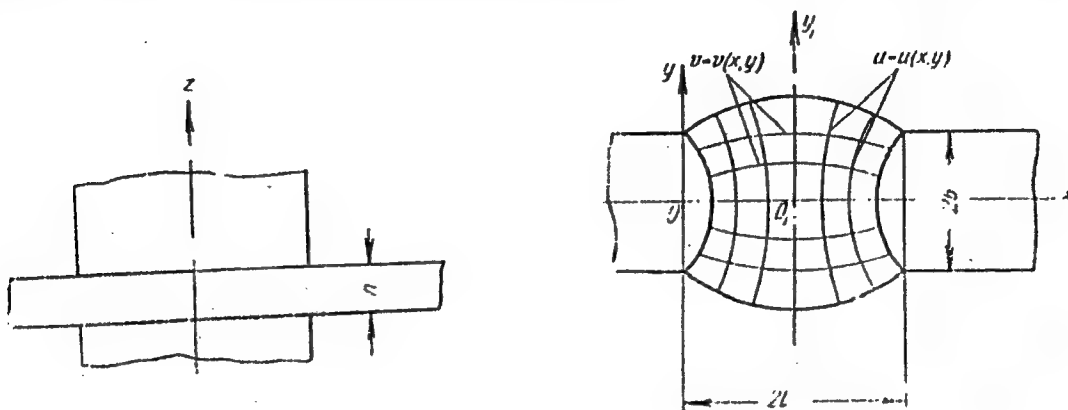
Card 5/8   Fig. 1.   Diagram of upsetting the strip with rigid ends.

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As a continuation of his previous work on the subject, the author develops 36 new equations. Using the methods of theory of variations, he concludes that the minimum value of the work of shape-changing is materialized with such a mechanism of deformation when the lines of flow are mutually perpendicular. The curves illustrating the effect of the ratio b/1 on deformation of the strip are given in Fig. 2. The deformation and widening of the strip at the final upsetting from height h_2 to height h_1 can be obtained by integration. A simplified equation (36) using average value $\frac{\Delta 1}{1}$ instead of the variable $\frac{d1}{1}$ is given.

The author states that the problem of deformation of the strip in presence of external friction will be considered in another article. There are 2 figures; and 7 Soviet references.

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$$\lambda = \frac{\Delta l}{l} = \left[1 - \frac{2}{3\left(0.5 + 0.102 \frac{l_c^2}{l_c^2}\right)} \right] \ln \frac{l_2}{l_1}. \qquad (36)$$

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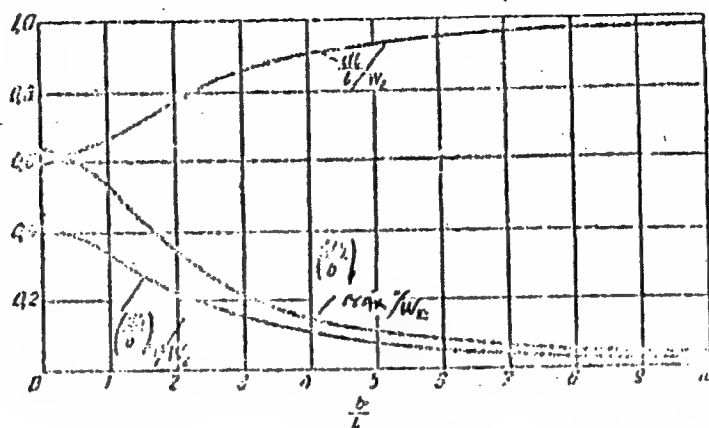

Fig. 2.   Effect of shape of region of deformation on
deformation of the strip in presence of rigid ends.

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ASSOCIATION: Chelyabinsk Polytechnic Institute (Chelyabinskiy
               politekhnicheskiy institut)

SUBMITTED: September 27, 1958

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1.1500

AUTHOR: Vydrin; V. N.

TITLE: Theory of continuous rolling

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya,
             no. 7., 1960, 75 - 81

TEXT: The basic regularities of the continuous strip rolling process
are mathematically analyzed considering the stands, strip and electric drive
of an integral system under the effect of the energy conservation law. Equa-
tions of the strip tension, rolling moment and power, and lead are derived and
suggested for use in the analysis and calculation of automatic control systems
for continuous rolling mills. The continuous rolling process with tension
(with reels) had been discussed in detail in the author's papers (Ref. 1: O vli-
yanii natyazheniya polosy na operezheniye. Teoriya obrabotki metallov davle-
niyem (sb. statey) (On the Effect of Strip Tension at Lead. Assembled Articles
on the Theory of Pressure Working of Metals), Mashgiz, 1958) and the strip de-
formation power and friction power on the contact surface. (Ref. 2: Rabota
i moshnhost' prokatki. Teoriya obrabotki metallov davleniyem (sb. statey)

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S/148/60/000/007/022/023/XX
A161/A033

Theory of continuous rolling

(The Working and Rolling Power. Assembled Articles on the Theory of Pressure Working and Metals), Mashgiz, 1958; Ref. 3: O rabote treniya pri prokatke. Teoriya obrabotki metallov davleniyem (sb. statey) (On the Working Friction at Rolling. Assembled Articles on the Theory of Pressure Working and Metals), Mashgiz, 1958). The basic kinematic equation in the calculation is

$$v\omega_\gamma \cos\gamma = v\omega_1 (1 + i) = c \tag{9}$$

where v is the peripheral velocity of rolls, ω_γ - the cross section area of the strip in the critical deformation spot; γ - the critical angle. Value "c" is a constant which must be known to determine the load and lead in all mill stands, and the strip tension in separate sections. The tension formula is evolved

$$\sigma_1 - \sigma_0 = \sigma_s \ln \frac{h_0}{h_1} - 1\tau_c \sqrt{\frac{R}{h_1}} \left(\text{arctg} \sqrt{\frac{\Delta h}{h_1}} - \frac{\tau_{c2}}{\tau_c} \text{arctg} \sqrt{\frac{R}{h_1}} \gamma \right) \tag{25}$$

and differentiated for each stand. (σ_0 and σ_1 - specific tension in the rear

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Theory of continuous rolling

and front strip end; σ_s - the mean yield limit of strip in the deformation spot; $\ln$ - a value from (Ref. 2) (3); h_0, h_1 - the start and end strip thickness; τ_0 - a certain intermediate value of the specific friction forces in the seat deformatiion; R - roller radius). The rolling power equation (29) is differentiated and reduced to the brief form

$$\frac{dN}{N} = \frac{dM}{M} + \frac{dv}{v} - \frac{dR}{R}$$

where N is power, M - the torque on the motor shaft; $\frac{dM}{M}$ is to be determined by the equation (29), and $\frac{dv}{v}$ by the equation (14). The lead is found by differentiating the equation

$$i = \frac{R}{h_1} \tau^2$$

It is suggested to replace the differentials by their gains and use initial values instead of the variable parameters in practical calculations. Accurate

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calculations are possible by methods known in mathematics, or with the use of electronic computers. There is 1 figure and 3 Soviet-bloc references.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Polytechnical Institute)

SUBMITTED: June 15, 1959

Figure 1: Layout of continuous rolling. I, II, III, n-1, n-stands.
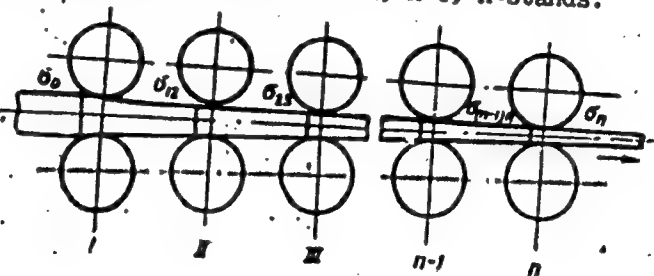
Card 4/4

VYDRIN, V.N.; VOLOSHNIKOV, V.P.; SARDINSKIY, N.P.; AMOSOV, P.N.

Studying the leading on continuous small-shape mills. Izv.
vys. ucheb. zav.; chern. met. no.9:110-115 '60. (MIRA 13:11)

1. Chelyabinskiy politekhnicheskiy institut i Chelyabinskoye
otdeleniye Gosudarstvennogo proyektnogo instituta "Tyazhprom-
elektroproyekt."

(Rolling (Metalwork))

S/148/60/000/011/008/015
A161/A030

AUTHORS: Vydrin, V. N.; Amosov, P. N.; Boyko, M. Ye.; Moshkin, S. I.

TITLE: Investigation of pressure and tension in a continuous small-
            -gage merchant rolling mill

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya,
            no. 11, 1960, 81 - 87

TEXT: Data on the rolling pressure and its dependence on tension in
continuous merchant mills are of practical and theoretical interest, but
little study had been devoted to the problem up to now. The subject in-
vestigation has been carried out on a 300 mm mill by the use of a membrane
type dynamometer (Figure 2) for pressure and a different dynamometer for
tension (the latter described in Ref. 2, same four authors, in this perio-
dical No. 6, 1959). The tension dynamometer had been improved, the new de-
sign is shown (Figure 2); it was calibrated directly in the mill stand.
Measurements data were recorded by a МПО-2 (MPO-2) oscillograph, under
normal operation, and with artificially produced tension at the rear or at
the front. Tension dynamometers were installed from both sides of stand

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Investigation of pressure and ....

No. 3 in the rough mill group, and pressure dynamometers were placed under
one ore beneath both the down screws. Operation in the finish stand was
also studied, with one rear tension dynamometer placed from the front side,
and one pressure dynamometer. The observed amplitude of pressure and ten-
sion varied regularly in periods corresponding to one roll revolution. The
conclusion was made that the cause of alternating dynamic loads are the
spindles and the Hook joints. As is known, the circumference velocity of
the driven shaft at a Hook joint varies during one revolution in a definite
range depending on the angle of obliqueness of the shafts, e.g., the ve-
locity variation is 5 % at an oblique angle of 10 %. When two Hook joints
are used and placed with the same orientation in the space (as was the case
in experiments), the unevenness of the driven shaft is reduced, but it is
obvious that it is not fully eliminated. A spindle has a considerable mass,
and it works like a flywheel rotating unevenly at every revolution. The
slight jerking of strip observed between the stands without the presence
of a loop or considerable tension demonstrates this. It is evident that
the velocity of the rolls varies during a revolution, and the tension varies
with it in regular periods. This is not observed in linear or single-

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Investigation of pressure and ....

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-stand mills, but in continuous mills working at tension (even if very slight) it results in regular variations of pressure and tension, and the thickness of the rolled metal varying periodically. Eccentricity of the roll trunnion bores might have a similar effect, but not in these experiments for the shape of the harmonics would then be smoothly sinusoidal, and this is not the case. The oscillograms regularly show four peaks in every period, corresponding to the four positions of the Hook joint in the space. Eccentricity of the rolls could not have this effect, for it did not exceed hundredths of one millimeter. There are 9 figures and 2 Soviet references.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut i Chelyabinskiy metallurgicheskiy zavod (Chelyabinsk metallurgical institute and Chelyabinsk metallurgical plant)

SUBMITTED: February 17, 1960

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Investigation of pressure and ...

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A161/A030

Figure 2: Membrane dynamometer for pressure.
(1) lid; (2) fastening screws; (3) gasket;
(4) wire strain gages; (5) housing.
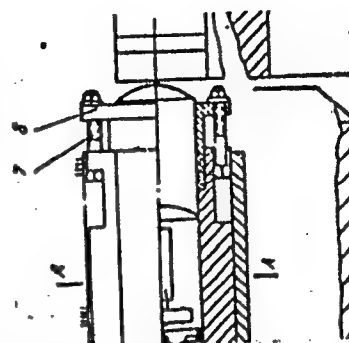
Figure 3: New tension dynamometer. (1) abutment screw; (2) bracket; (3)
housing; (4) bushing; (5) core; (6) stop screw; (7) tie bolt; (8) stuffing
box lid; (9) transition block; (10) wire strain gages; (11) stop;
(12) attachment bolts.

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По AA

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Figure 3 (continued)

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Figure 8: The effect of rear tension on the pressure in finish stand (simplified).

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S/148/60/000/009/015/025
A161/A030

AUTHORS: Vydrin, V.N., Volosnikov, V.P., Sardinskiy,N.P., and Amosov,P.N.

TITLE: Investigation of lead in a continuous merchant mill
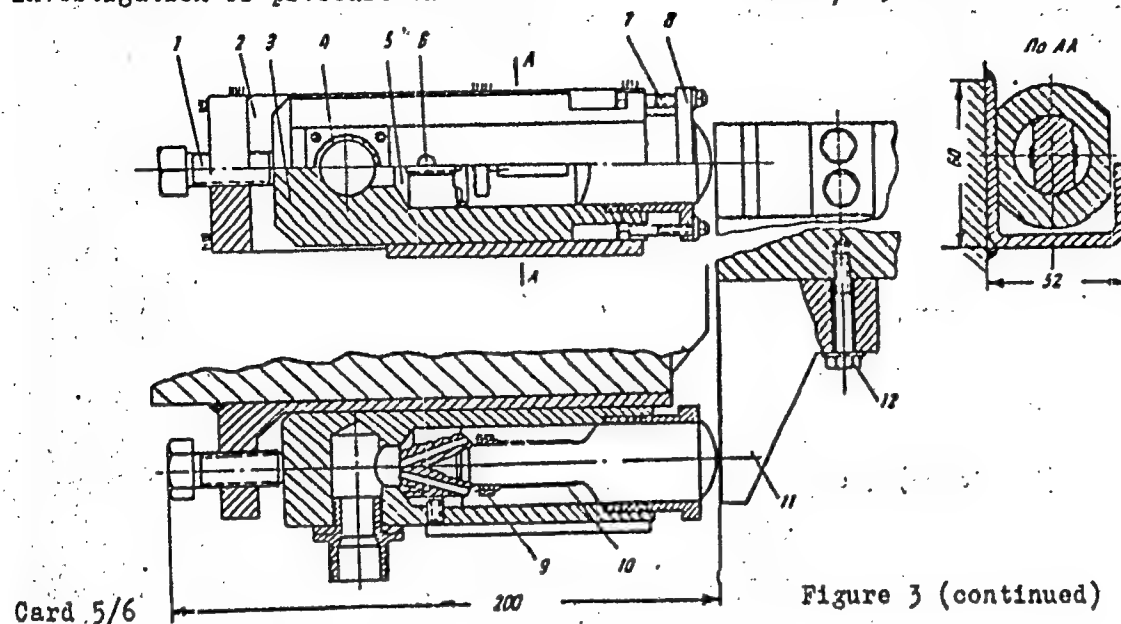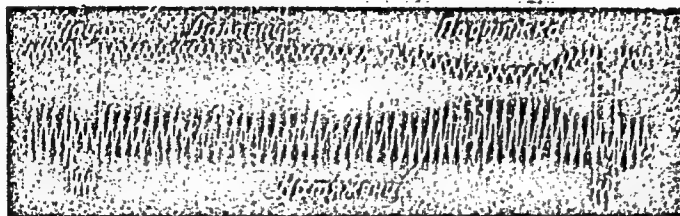
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya,
              no. 9, 1960, 110-115

TEXT: Theoretical lead calculation methods exist for rolling strip
on smooth rollers only. The new method described permits measurements of
lead on any rolling mill. It is based on measurement and comparison of
distances passed by a point on the surface of the roller and a point on the
surface of metal being rolled. Two electromechanical pickups (interrupters)
watch the velocity of the rollers and of the strip. The pickups (Fig.1)
have a collector (1) at the same axle (2) with a disc (3) with file-cut on
the edge to prevent slip. The axle runs on two ball bearings in casing (5)
and is fixed by the bushing (6) and cover (7), and sealed with gaskets (8 -
and 9) and packing (10). The collector plates are connected to the pickup
mass through the contact (11) so that the brush slides alternately over the
conducting and over the idle plate when the disc rotates, and the circuit

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interrupts. The brush holder (12) is attached by means of the bracket (13).
The circuit closes as many times during one revolution of the disc, as
many collector plates are connected with the pickup body. Two like pickups
rotating at the same velocity give the same number of pulses in a time
unit, and the velocity of the two discs in contact with the roller and with
the strip will differ by the value of lead. A photo shows the pickups in
operation (Fig.2). Pulses from the pickups can be recorded on film with
a МПО-2 (MPO-2) oscillograph, or they can be counted directly with the use
of a special system. The oscillographing is simple. An oscillogram is
shown (Fig.3). But the processing of measurement results is not convenient.
The special counting system is an electric computer, illustrated in a block
diagram (Fig.4). Voltage pulses from the two pickups МД-1 and МД-2 go into
a limiting circuit ОВИ-1 or ОВИ-2 ("ogranichitel' vkhodnykh impul'sov" =
input pulse limiter), for even a slight beat of the collector changes the
transition resistance between it and the brush, and the pulse amplitude
changes. Pulses limited in amplitude go on to amplifiers У-1 and У-2, and
on to the shaping circuit ФИС consisting of a half-cycle multivibrator with
cathode and anode-grid connection. Sharp output pulses from the ФИС with

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50-60 microsecond duration are the count pulses. A special control system has been built for a precise simultaneous start and end of the count from both pickups, with start push button ПК earthing the anode voltage circuit through a high-resistance resistor. The voltage difference formed at the moment is differentiated and fed into the pulse-forming circuit ФИ , and the voltage front rises abruptly. The pulse from the ФИ is differentiated, amplified in the amplifier У-3 and fed to start the control trigger УТ. The excitation time of the trigger is the metering time. The trigger УТ controls through the cathode follower КП, the coincidence circuits И receiving also the pulses from the ФИС units. The counting storage units СНР -1 and СНР-2 count pulses during the excitation time of the trigger УТ. The УТ is returned into the start position by again pressing the starting push button ПК. The counting storage units are binary counters, but the counters used in experiments were decade counters (with ten series-connected triggers) permitting count $2^9 + 2^8 + 2^7 + 2^6 + 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0 = 1023$ pulses. This was sufficient at a rolling speed of up to 10 m/sec and 2 sec metering time. Neon lamps are connected into the anode circuits of the triggers for fixing the excitation. The system is returned into a start position after metering

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by the synchronization push-button KC through the pulse shaperφH, differen-
tiating circuit$\mathcal{A}^{u}$, detector $\mathcal{A}$ for producing unipolar positive pulses, and
the amplifier y-4. This return system works like the counting control sys-
tem. The portion of Fig.4 separated out by a dashed line shows the portion
of the system that was absent in the described operating model, but which
can easily be built. It is a system for automatic comparison of data that
can produce digital readings, or readings in the form of voltage or current
on a dial indicator graduated in lead units, or on an oscillograph. This
automatic comparator may be in the form of a usual parallel adder working
as subtracter. In this case it would be controlled from a shock oscillator
excited by synchronization pulse with subsequent formation of the produced
pulse series into a series of sharp pulses for controlling the operation
of the adder. This effect can be obtained also with the use of any type of
delay line. This comparing unit can solve the equation

$$i = \frac{100}{n_g} \Delta n\%$$

where i is the lead value in per cent; Δn - the difference of the counted

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pulse values; n_b - the number of pulses counted from the pickup on the roll. The metering error is 0.098% at maximum pulse number 1023. Experiments were carried out on the planishing stand No.9 of the mill, in rolling spring steel strip 76 x 9.5 mm. The results of pulse count are given in a table. The mean lead in normal rolling was 4.9%, the maximum 7.6%, and the minimum 2.7%. The effect of tension on the lead is shown in curves (Fig.5). At a certain degree of velocity mismatch, when the lead curve crosses the X axis, the strip slips in the rollers. The front tension increases lead, but it was produced by the No.10 stand alone in this case, and the rear tension from the stands No.1 to 8 was stronger. Conclusion: The suggested metering method permits: a) measuring and recording on oscillograph film the value and the variations of lead or lag in any rolling mill; b) to reveal slip of rolls; c) to determine the rolling diameter in rolling in grooves from the relation

$$\frac{n_\Pi}{n_B} = \frac{D_K}{D_\delta}$$

where n_Π - the number of pulses of the pickup on the strip; n_B - the pulses

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A161/A030

number from the pickup on the roll; D_{Γ} - the roll barrel diameter; D_K - the rolling diameter. There are 5 figures and 1 table.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Polytechnical Institute) and Chelyabinskoye otdeleniye GPI "Tyazhpromelektroproyekt" (The Chelyabinsk Branoh of the GPI "Tyazhpromelektroproyekt")

SUBMITTED: 7 December 1959

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Investigation of lead ...

Fig. 1
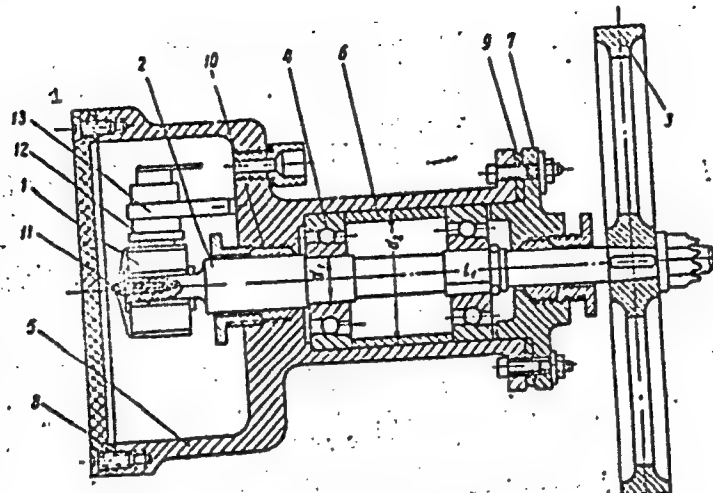
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Fig. 2
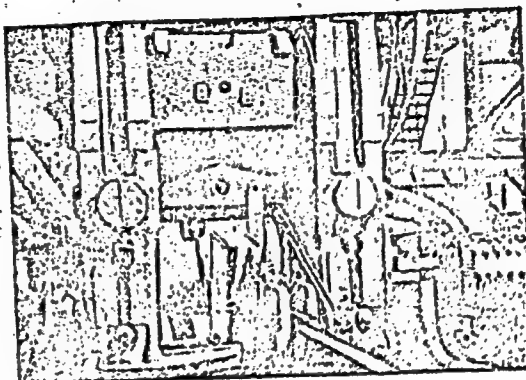
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Fig. 3

3
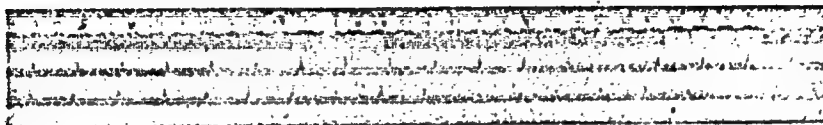
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A161/A030

Fig. 4
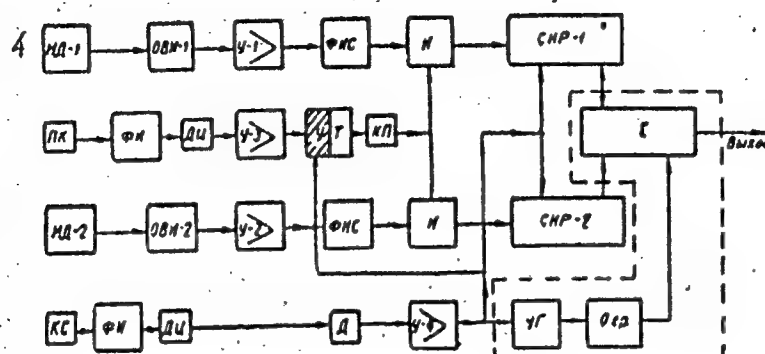
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VYDRIN, V.N.; AMOSOV, P.N.

Device for measuring the tension of a strip on continuous section
mills. Izm.tekh. no.7:9 Jl '61.   (MIRA 14:6)
                        (Rolling mills)
                        (Strain gauges)

VYDRIN, V.N.

Design equations for the continuous rolling porcess. Izv. vys.
ucheb. zav.; chern. met. no.3:61-66 '61.   (MIRA 14:3)

1. Chelyabinskiy politekhnicheskiy institut.
                (Rolling(Metalwork))

VYDRIN, V.N.

Parameters characterizing the shape of the deformation center in rolling. Izv. vys. ucheb. zav.; chern. met. 4 no.11:94-96
'61.
(MIRA 14:12)

1. Chelyabinskiy politekhnicheskiy institut.
(Rolling (Metalwork))
(Deformations (Mechanics))

S/115/61/000/007/002/004
E194/E435

AUTHORS: Vydrin, V.N. and Amosov, P.N.

TITLE: An instrument for measuring strip tension on
             continuous section rolling mills

PERIODICAL: Izmeritel'naya tekhnika, 1961, No.7, p.9

TEXT: In 1956 the Chelyabinsk Polytechnical Institute suggested
a method for direct measurement of tension on continuous section
rolling mills; it is described in previous articles (Ref.1:
Vydrin V.N., Boyko M.Ye., Amosov P.N. and Moshkin S.I.
Izvestiya vysshikh uchebnykh zavedeniy MVO SSSR, Chernaya
metallurgiya, 1959, No.6; Ref.2: Vydrin V.N. Metallurgizdat, M.,
1960).   It is now proposed to introduce this device into
production to control the speed of the roughing group of stands of
the mill.   The strip in a continuous mill may be subject to
either tension or compression and the same pick-up should be
suitable for operating with either.   Accordingly, a new type of
pick-up was developed and its construction is described here.
Referring to the illustration, the frame of the pick-up 5
contains a core 9 carrying a strain gauge bridge.   The core is
fixed into the body of the frame without backlash by means of the
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An instrument for measuring strip ...E194/E435

ring 4 and the threaded rod 7 . A cover is provided to prevent ingress of water and dust. The two bearing houses 2 contain double row ball bearings type No.1002, being held down by the bolts 8 . The bearings are also protected against dirt and moisture. One of the bearing housings is fixed to clamps 1 which are welded to the frame and the other to lugs which are welded to the roll support pads. The adjusting nut 3 , with right and left hand thread, is used to adjust the gap between the frame and the pad. By means of this device, the pad which rests on the cylindrical support is adjusted within the frame until there is the same clearance on both sides of it and then the adjusting nut 3 is fixed by lock nuts. With this pick-up it is possible: to measure tension and thrust fore and aft of the stand; to determine the influence of tension and thrust on the rolling pressure and other rolling conditions; to determine the additional horizontal loads on the roll neck bearings, which is particularly important in high speed mills; to provide automatic control of mill operation with control of tension by applying the pick-up signal to the mill motor control circuit. There are 1 figure and 2 Soviet references.

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VYDRIN, V.N.; BOYKO, M.Ye.; MOSHKIN, S.I.; AMOSOV, P.N.

Investigating the process of strip rupture in continuous
rolling mill stands. Izv. vys. ucheb. zav.; chern. met.
4 no.7:97-100 '61.   (MIRA 14:8)

1. Chelyabinskiy politekhnicheskiy institut i Chelyabinskiy
metallurgicheskiy zavod.
            (Rolling (Metalwork))

VYDRIN, V.N., kand.tekhn.nauk; BEREZIN, Ye.N., inzh.; KHIMICH, G.L.;
TRET'YAKOV, A.V.; FEDOROV, M.I.; VASHCHENKO, Yu.I.

"Mechanical equipment of rolling mills" by A.A. Koroleva. Re-
viewed by V.N. Vydrin and others. Stal' 22 no.1:61-63 Ja '62.
(MIRA 14:12)

1.- Chelyabinskiy politekhnicheskiy institut (for Vydrin, Berezin).
2. Nauchno-issledovatel'skiy konstruktorsko-tekhnologicheskiy
institut tyazhelogo mashinostroyeniya Uralmashzavoda i Ural'skiy
politekhnicheskiy institut (for Khimich, Tret'yakov, Fedorov).
          (Rolling mills—Equipment and supplies)
               (Koroleva, A.A.)

VYDRIN, V.N.; BROVMAN, M.Ya.; SKORKIN, N.V.

Measuring tension in continuous rolling mills. Izv. vys. ucheb.
zav.; chern. met. 6 no.6:100-105 '63.   (MIRA 16:8)

1. Chelyabinskiy politekhnicheskiy institut.
                                    (Rolling mills)

VYDRIN, V.N.; AMOSOV, P.N.; AGEYEV, L.M.

Dynamometer with a nonamplifying circuit and resistance strain
gauges. Izm. tekh. no.8:24-25 Ag '63.   (MIRA 16:10)

VYDRIN, V.N.; BARKOV, L.A.; BLINOV, Yu.I.

Determining contact areas in rhomb – square grooves. Izv.
vys. ucheb. zav.; chern. met. 6 no.12:109-111 '63.
(MIRA 17:1)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V.N.; KRAYNOV, V.I.

Investigating operating conditions of continuous cold rolling
sheet mills in connection with automatic control problems.
Izv. vys. ucheb. zav.; chern. met. 6 no.12:112-117 '63.
(MIRA 17:1)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, Vladimir Nikolayevich, doktor tekhn. nauk; SITNIKOV,
Leonid Leonidovich, inzh.; KORNILOV, Petr Vasil'yevich,
inzh., SVET, Ye.B., red.

[Strength of rolling-mill rolls] Stoikost' prokatnykh
valkov. Cheliabinsk, Cheliabinskoe knizhnoe izd-vo, 1964.
70 p.   (MIRA 17:8)

VYDRIN, V.N.; BARKOV, L.A.

Determining the rolling diameter in rhomb - square grooves.
Izv. vys. ucheb. zav.; chern. met. 7 no.1:89-94 '64.
(MIRA 17:2)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V, N.; BARKOV, L. A.

Capacity during rolling in square and diamond-shaped grooves.
Izv. vys. ucheb. zav.; chern.met.7 no. 5:94-96 '64.   (MIRA 17:5)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V.N.; BARKOV, L.A.

Energy for rolling in square and diamond-shaped grooves with tension or backing of the strip. Izv. vys. ucheb. zav.; chern. met. 7 no.2:94-99 '64.   (MIRA 17:3)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V. N.; BROVMAN, M. Ya.; RIMEN, V. Kh.

Elastic longitudinal vibrations of strips being rolled on contin-
uous mills. Izv. vys.ucheb.zav.; chern.met.7 no. 4:83-77 '64.
(MIRA 17:5)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V.N.; BARKOV, L.A.

Characterof the critical line in the diamond – square groove system. Izv. vys. ucheb. zav.; chern. met. 7 no.3:113–117 '64.   (MIRA 17:4)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V.N., doktor tekhn. nauk, prof.; BROVMAN, M.Ya., kand.tekhn.nauk; RIMEN, V.Kh., inzh.

Dynamometers for measuring stresses in continuous rolling mills. Izv.vys.ucheb.zav.;mashinostr. no.5:162-167 '64. (MIRA 18:1)

1. Chel'yabinskiy politekhnicheskiy institut (for Vydrin). 2. Yuzhno-Yral'skiy mashinostroitel'nyy zavod (for Brovman, Rimen).

VYDRIN, V.N.; BATIN, Yu.T.

Investigating rolling with equal specific and absolute tensions.
Izv. vys. ucheb. zav.; chern. met. 7 no.9:102-105 '64.
(MIRA 17:6)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V.N.; AMOSOV, P.N.; FEDOSIYENKO, A.S.; KRAYNOV, V.I.

Measuring irregularities of angular velocity in rolls. Izm.
tekh. no.11:31-34 N '64.   (MIRA 18:3)

VYDRIN, V.N.; ROZNIKOVA, A.P.; STEBLEVA, A.T.

Relationship between sphalerite-galenite mineralization and
dolerite dikes (Yenisey Range). Dokl. AN SSSR 159 no.6:1309-1312
D '64   (MIRA 18:1)

1. Moskovskiy gosudarstvennyy universitet i Krasnoyarskoye geo-
logicheskoye upravleniye. Predstavleno akademikom V.I.Smirnovym.

ACC NR: AR6014378 (A,N)   SOURCE CODE: UR/0137/65/000/011/D035/D035

AUTHORS: Vydrin, V. N.; Novikov, A. G.

TITLE: Velocity and length of a floating mandrel during continuous rolling of pipes

SOURCE: Ref. zh. Metallurgiya, Abs. 11D240

REF SOURCE: Sb. Proiz. svarn. i besshovn. trub. Vyp. 3. M., Metallurgiya, 1965, 70-78

TOPIC TAGS: pipe, metallurgic process, metal working machine, metal tube, metal rolling

ABSTRACT: The fundamental equation of motion of a floating mandrel during a continuous pipe rolling process was derived. The methodology of calculating the velocity and optimum length of a free floating mandrel was improved. Formulas for determining the advance of the mandrel from the pipe and velocity of the free floating mandrel were derived. The calculated results were compared with experimental data. 2 illustrations, 2 tables. Bibliography of 6 citations. L. Kochenova /Translation of abstract/

SUB CODE: 13

Card 1/1   UDC: 621.774.001

VYDRIN, V.N.; GRUZDEV,V.S.

Endogenetic dispersion halos of zinc-lead deposits in the Yenisey Range.
Geol. rud. mestorozh. 7 no.1:45-57 Ja-F '65.   (MIRA 18:4)

1. Moskovskiy gosudarstvennyy universitet, kafedra poleznykh
iskopayemykh, i Vsesoyuznyy nauchno-issledovatel'skiy institut
mineral'nogo syr'ya, Moskva.

BROVMAN, M.Ya.; VYDRIN, V.N.; YERMOKHIN, F.K.; KISLYUK, V.A.; KRAYNOV, V.I.;
LEVINTOV, S.D.; RIMEN, V.Kh.; SEREBRYAKOV, A.N.; SHEYDER, B.E.

Method of controlling the tension in continuous rolling mills.
Stal' 25 no.7:629-631 Jl '65.   (MIRA 18:7)

VYDRIN, V.N.; FEDOSIYENKO, A.S.

Kinematic conditions in the continuous rolling process. Izv.
vys. ucheb. zav.; chern. met. 8 no.2:93-98 '65.

(MIRA 18:2)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V.N.; KRAYNOV, V.I.

Investigating the process of continuous rolling of large sections.
Izv. vys. ucheb. zav.; chern. met. 8 no.5:90-97 '65.

(MIRA 18:5)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V.N.; BATIN, Yu.T.

Capacity and leading during the rolling in box passes with tension and
back tension of the strip. Izv. vys. ucheb. zav.; chern. met 8 no.7:
88-94 '65.   (MIRA 18:7)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V.N.; FEDOSIYENKO, A.S.

Theory of the dynamic operating conditions of continuous cold rolling
mills. Izv.vys.ucheb.zav.; chern.mot. 8 no.8:65-68 '65.
(MIRA 18:8)

1. Chelyabinskiy politekhnicheskiy institut.

VYDRIN, V.N.; AGEYEV, L.M.

Effect of expansion in width on the form of the space of contact stresses. Izv. vys. ucheb. zav.; chern. met. 6 no.11:69-73 '65. (MIRA 18:11)

1. Chelyabinskiy politekhnicheskiy institut.

MATVEYEV, Yu.M., doktor tekhn. nauk; VYDRIN, V.N., doktor tekhn. nauk;
FINKEL'SHTEYN, Ya.S., kand. tekhn. nauk; KAUFMAN, M.M., kand.
tekhn. nauk; GLEYBERG, A.Z., kand. tekhn. nauk; NOVIKOV, A.G.,
inzh.; SITNIKOV, L.L., inzh.; NODEV, E.O., inzh.; STOLETNIY,
M.F.,inzh.; STERN, V.A., inzh.; FRIDMAN, D.S., inzh.

Operating conditions and wear of mandrels on the continuous
billet mill of a 30-102 pipe rolling unit. Stal' 25 no.10:
930-934 O '65.   (MIRA 18:11)

ACC NR: AP7003⋅   (A)   SOURCE CODE: UR/0133/67/000/001/0053/0057

AUTHOR: Brovman, M.Ya.; Skorkin, N.V.; Shumkov, V.D.; Vydrin, V.N.;
Dodin, Yu.S.; Makarov, V.G.; Rimen, V.Kh.; Lind, I.K.

ORG: Yuzhuralmashzavod; Chelyabinsk Polytechnic Institute
(Chelyabinskiy politekhnicheskiy Institut); Chelyabinsk Metallurgical
Plant (Chelyabinskiy metallurgicheskiy zavod)

TITLE: Investigation of a new 900/700/500 continuous blooming mill

SOURCE: Stal', no. 1, 1967, 53-57

TOPIC TAGS: metal rolling, hot rolling, rolling mill, continuous
rolling mill/900-700-500 mill
                    ROLLING

ABSTRACT:
    The new 900/700/500 continuous blooming mill, designed and built at the
Yuzhno-Ural'skiy Machine Building Plant, is in operation at the Chelyabinsk
and Krivorozhskiy Metallurgical Plants. The new mill is designed for
rolling square blooms with a cross section of 80 x 80—170 x 170 mm and
flat slabs from 370 x 370 mm carbon and alloy steel blooms weighing up to
9 tons. Provision is also made for rolling round bars 105, 120, 140, 150,
170 and 220 mm in diameter. The mill is designed to produce 5.5 million
tons of rolled stock per year; the metal delivery rate at the last stand

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ACC NR: AP7003872

is 7 m/sec and the specific efficiency per ton of the equipment is said to
be 25% higher than that of the most efficient existing blooming mills. The
new mill consists of 14 stands. The first group consists of two separate
900 horizontal stands and a continuous set of six stands (two of them with
vertical rolls). The second group of stands consists of three vertical and
three horizontal stands. A planetary flying shears, made at the Staro-
Kramatorskiy Plant, is used for cutting billets to size. Rolling large
billets, 150 x 150 mm and up, is done in the first group of stands; the
billets are shifted to a side roll gang and cut to length with 1000-ton
shears. The stands have an individual electric d-c motor drive with
continuous automatic power regulation. For further automation and higher
precision of the rolling process, provision is made for installing magneto-
elastic sensors of the metal pressure on the rolls. Experience showed
that for continuous safe operation the billet surface temperature should not
be lower than 1000C. The design of the stands and the technology used
ensure the necessary accuracy for rolling commerical stock. Orig. art..
has: 6 figures and 3 tables.
[MS]

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 006/ ATD PRESS: 5115

Card 2/2

VYDRIN, Yu. V.; TRUSOVA, F.V.

Controlling the Acroptilon picris. Zemledelie 26 no. 4:34-40
Ap '64.   (MIRA 17:5)

1. Krymskaya oblastnaya gosudarstvennaya sel'skokhozyaystvennaya
opytnaya stantsiya.